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ABSTRACT

This study investigates the communication process of Live Chat Online Customer Service (LCOCS), an innovative tool delivering real-time help and on-demand assistance to online customers using live chats and co-browsing windows. The purpose of this study is to examine the differential effects of media synchronicity and task type on the performance of dyadic communication in LCOCS. Data have been collected from 362 transcripts of live chat sessions and coding has begun. This study is intended to help researchers understand the particular communication structures within dyadic partners in the context of virtual collaboration. Furthermore, this study aims to help practitioners increase the efficiency and effectiveness of their online support.

Keywords

Media synchronicity, task, dyad, chat, customer service.

INTRODUCTION

Quality customer service is believed to be the most important factor for achieving customer satisfaction and competitiveness (Ray, Muhanna and Barney, 2005; Szymanski and Henard, 2001). The Internet has introduced new models incorporating innovative tools, such as live chat, to formulate one-to-one relationships between merchants and customers to increase customer satisfaction and achieve competitive advantage (Brohman, Watson, Piccoli and Parasuraman, 2003). LCOCS extends traditional customer service channels to deliver real-time help and on-demand assistance to online customers' inquiries. Lately, LCOCS has been adopted by many web sites globally, such as eBay, British Airways, and the New York Public Library. Online customers use live chat to receive instant answers to their questions online. A co-browsing window allows a dyad (a customer and a representative) to navigate a shared web page where either of them can initiate browsing activities. LCOCS has been reported to reduce transaction costs from $1.25 (by phone) to $0.25 (by live chat), and to increase online purchases by 41% (Zinkhan, Kwak, Morrison and Peters, 2003).

In contrast to the fast growth of LCOCS in practice, there has been little academic research to explore this phenomenon theoretically and systematically. The purpose of this study is to investigate the differential effects of media and task on the performance of LCOCS. More specifically, does offering co-browsing increase the performance of LCOCS communication? How do different question types affect the performance of LCOCS communication? The next section reviews theoretical foundations and presents a research model and hypotheses. This is followed by the research plan including data collection and data analysis.

MEDIA SYNCHRONICITY THEORY (MST)

Media synchronicity is defined as "the extent to which individuals work together on the same activity at the same time; i.e. have a shared focus" (Dennis and Valacich, 1999, p. 5). MST decomposes the usual communication task, normally studied as a single task, into conveyance and convergence processes (Dennis, Valacich, Speier and Morris, 1998). According to Dennis et. al., 1998, conveyance represents the process of exchanging information, and convergence represents the process where group members engaged to seek understanding of how other individuals interpret or comprehend exchanged information, and then come to a mutually agreed-upon meaning.

MST proposes that: (1) for conveyance communication, low synchronicity will be more effective; and (2) for convergence communication, high synchronicity will be more effective. The fundamental concept of MST is on the level of sub-process media-technology fit: communication performance will be improved when media synchronicity matches the communication processes (conveyance or convergence).

Results of a handful of empirical studies of MST have shown mixed support, with the majority falling on the supportive side. For example, Dennis et al. (1998) tested the theory in a laboratory experiment. Their results showed that conveyance processes were more effective when using media with low synchronicity; but no support was found for matching convergence processes with high synchronicity. Baker and El-Shinnawy (2001) studied media effects on virtual team performance. They found that increasing media synchronicity by adding video to audio-only communication resulted in improved convergence processes. Similarly, Murthy and Kerr (2003) studied decision making performance and found partial support for the theory.

RESEARCH MODEL AND HYPOTHESES

Figure 1 depicts the research model to be evaluated in this study. The model proposes a relationship between media synchronicity, task type, performance of the dyad's communication process, and customer satisfaction.
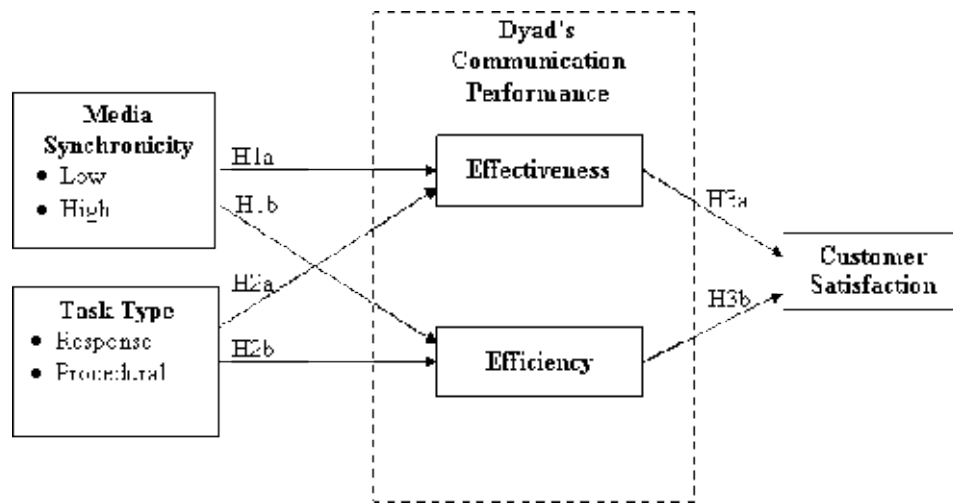

Figure 1. Research Model

Compared to pure text exchanges alone, co-browsing increases the speed of feedback exchanged and the number of visual symbols used in a chat session. Based on the definition of media synchronicity in Dennis et al. (1998), the combination of text exchanging and co-browsing represents a higher level of media synchronicity than text exchanging alone. In LCOCS, customers use a live chat service to solve their problems or find answers to their questions. No matter which medium is used, it will not affect the accomplishment of the goal to service online customers. Therefore, the effectiveness of LCOCS is represented by the extent to which the question is answered or the problem is solved. Thus, the effectiveness of the live chat communication process is not dependent on differences in media synchronicity. Therefore,

H1a: The performance of dyadic communication in live chat conversations should be equally effective for the chat sessions using text exchange alone and the chat sessions using both text exchange and co-browsing.

Efficiency of a live chat session represents what is accomplished in a given unit of time (Wang, Huang and Lai, 2005). By using co-browsing, the ability and speed of exchanging information is increased by presenting a large amount of information via web pages simultaneously to each party. Compared to typing text, using co-browsing accelerates the speed of information exchange by delivering much more information to the recipient almost instantly and therefore increases the efficiency of LCOCS communication. Thus,

H1b: Compared to using text message exchanging alone, using both text message and co-browsing in live chat will increase the efficiency of the dyad's communication to answer the question or solve the problem posed by the customer.

Tasks in LCOCS can be classified into two types: response task and procedural task, based on the specificity of complexity of the information seeking/providing procedure (Wood, 1986; Zigurs and Buckland, 1998). Response tasks merely seek an answer or solution without requesting the specific steps or processes to reach the solution. These questions can be identified by key words such as "what, where, when, why." In contrast, procedural tasks focus on the procedures of how to solve the

proposed problem step-by-step. These questions can be identified by key words such as "how." Response and procedural tasks differ by the behavior requirements (including time, mental power, labor) for accomplishing goals (how to accomplish), but not the component or content of the goal alone (what to accomplish). The goal of customer service is to provide information and/or solutions to customers' questions. No matter what the task type, the goal is to be accomplished by finding the answer or providing a solution. Thus, the effectiveness of the live chat communication process is not dependent on differences in task type. Thus,

H2a: The performance of dyadic communication in live chat conversations should be equally effective for response and procedural tasks.

Procedural tasks require the exchange of detailed information and for performing activities step-by-step between the service representative and the customer. Not only do the dyadic partners have to exchange a large amount of information, they also have to understand each other on each step taken. Therefore, procedural tasks take more time to accomplish than response tasks, which simply focus on delivering the requested answer to the proposed question. Therefore,

H2b: The performance of live chat sessions with the goal to solve response tasks is more efficient than the performance of live chat sessions with the goal to solve procedural tasks.

Interaction between task and media synchronicity will also be examined. Because response tasks merely seek an answer or solution, they are largely represented by conveyance communication processes between the dyadic partners. Because procedural tasks focus on the procedures of how to solve the proposed problem step-by-step, they are largely represented by convergence communication processes. MST proposes that for conveyance communication, low synchronicity will be more effective; and for convergence communication, high synchronicity will be more effective (Dennis et al. 1998). In LCOCS, the combination of text exchanging and co-browsing represents a higher level of media synchronicity than text exchanging alone. Therefore, there is an interaction between task and media synchronicity on the effectiveness of live chat communication session. The hypotheses are proposed:

H2c: Live chat sessions with the goal to solve response tasks are more effective when text message exchanging alone is used than when both text message and co-browsing are used.

H2d: Live chat sessions with the goal to solve procedural tasks are more effective when both text message and co-browsing are used than when text message exchanging alone is used.

Customer satisfaction is developed through activities involved in the live chat communication processes and therefore is affected by the efficiency and effectiveness of the communication session. Better performance of a dyad's live chat session will foster a higher level of customer satisfaction. Thus, the final hypotheses are proposed:

H3a: Increasing the effectiveness of a live chat communication session in online customer service will increase the level of customer satisfaction.

H3b: Increasing the efficiency of a live chat communication session in online customer service will increase the level of customer satisfaction.

RESEARCH PLAN

Data Collection

The site is a large public research university library located in the northeastern U.S. In March 2004, the Library adopted a virtual reference service system named "AskNow" where live chat service with a co-browsing feature was introduced to provide online service to more than 34,000 students and faculty in 17 schools and colleges. Customers (students, faculty, and staff) log into the system to chat with the representative. Customers are free to choose to use either only text exchanging, or the combination of text exchanging and co-browsing. A screen shot of the web page where the live chat service resides is shown in Figure 2. Data collected were the transcripts of 362 intact chat sessions from the natural setting of the research site. Compared to survey and experimental data, intact transcripts of conversations are the real reflections of interaction without any manipulation or distortion, therefore increasing the realism of the research.

Note: The web site on the right hand side and the conversation between the dyad on the left hand side provide a complete example. Dyads can co-browse any web sites in the co-browsing window on the right.

Figure 2. Research Site

Data Analysis Plan

Coding

Transcripts of live chat sessions will be analyzed to test the proposed hypotheses following the guidelines proposed by Lacity and Janson (1994) and Lombard, Snyder-Duch, and Bracken (2002).

(1) A coding scheme is developed (Table 1). This coding scheme will be used as a reference for coders to code all 362 live chat transcripts. The operationalization of these constructs in the research framework is based on theories and prior studies.

(2) Two outside coders will be selected to code the transcripts. To ensure coding validity, these two outside coders shall not be familiar with this research. A training session will be provided before the coders start pilot coding.

(3) A pilot coding test will be used to assess the reliability of coding. The author will select the longest 5% of the conversation transcripts, which will be coded independently by the outside coders.

(4) Krippendorff's alpha, a powerful indicator for coding reliability, will be calculated (Krippendorff, 2004; Lombard et. al., 2002). If the pilot test coding reliability is satisfactory, a randomly selected 10% of the transcripts of the full sample will be coded independently by the outside coders.

(5) If coding reliability is satisfactory, the outside coders will continue and finish coding the remaining transcripts.

(6) Values for the constructs in the research framework will be derived from the assigned codes. These values will be entered into an Excel file before importing them into statistical software to perform analysis.

The suggested intercoder reliabilities are: 0.90 or greater (nearly always acceptable), 0.80 or above (acceptable in most cases), and 0.70 or above (appropriate for some exploratory studies for some indices) (Lombard et. al., 2002).

Construct	Coding	Explanation
Media Synchronicity	Low (Text)	Only text exchanges are used
	High (Text and Co-browsing)	Text exchanges and co-browsing are used
Task Type	Response	The proposed question by the customer only seeks the answers; often seen as *what... when... where...*; and the question is answer by delivering direct answers
	Procedural	The proposed question by the customer emphasizes the procedures of solving the problem, often seen as *how...*; and the question is answered by specifying each step taken and the clarification that both the partners understand the current activity
Effectiveness	Complete	The question asked is answered completely
	Partial	The question asked is answered partially
	No	The question asked is not answered
Efficiency	Total chat time	The length of time for the chat session (in seconds)
	Response time	The average of time lag between the utterance of the service representative and the customer (in seconds)
	Frequency of utterance exchanges	Number of total utterances exchanged in the chat session divided by the total chat time
	Frequency of co-browsing clicks	Number of total co-browsing clicks divided by the total chat time
Customer Satisfaction	Very satisfied	There are phrases revealing positive emotions, such as "great", "wonderful", and "excellent"
	Satisfied	There are phrases revealing moderate reactions, such as "thank you"
	Neutral	There are no phrases revealing any positive nor negative emotion
	Not satisfied	There are phrases revealing dissatisfaction

Table 1. Proposed Coding Scheme

Analysis Methods

The scales of measurement of the variables in this study are presented in Table 2. Because effectiveness measures use a continuous scale, the distribution of each construct will be examined before any statistical method is conducted. If the distribution is not normal, transformations will be performed. A factor analysis will be performed on the four measures of efficiency. If result of factor analysis is satisfactory and if only one factor is derived, ANOVA will be used to test H1b and H2b. Otherwise, MANOVA will be performed for testing H1b and H2b. The detailed statistical methods planned for testing the hypotheses are presented in Table 3. Statistical power will be analyzed in addition to Chi-square, ANOVA and ordinal regression analyses.

Constructs	Scales of Measurement
Media Synchronicity	Ordinal Scale, Categorical
Task Type	Nominal Scale, Categorical
Effectiveness	Ordinal Scale. Categorical
Efficiency	Continuous, Numeric
Customer Satisfaction	Continuous, Numeric

Table 2. Scales of Measurement

Hypothesis	IV	DV	Statistical Method
H1a	Media Synchronicity	Effectiveness	Chi-square (ordinal correlation)
H1b	Media Synchronicity	Efficiency	ANOVA or MANOVA
H2a	Task Type	Effectiveness	Chi-square (ordinal correlation)
H2b	Task Type	Efficiency	ANOVA or MANOVA
H3a	Effectiveness	Customer Satisfaction	Chi-square (ordinal correlation)
H3b	Efficiency	Customer Satisfaction	PLUM Ordinal Regression

Table 3. Analysis Plan

CONCLUSION

This study focuses for the first time on live chat online customer service, a new and fast-growing phenomenon with very little scientific research to date. The mix of chatting, co-browsing, and dyadic implications need to be better understood to improve the results of live chat online customer services. The conceptual model is also intended to help researchers understand the particular communication structures within dyadic partners in the context of virtual collaboration, and to explore similar research contexts that involve task-oriented interpersonal communication. In addition, this study will empirically test Media Synchronicity Theory. Finally, this study will help practitioners to increase the efficiency and effectiveness of their online support to better serve online customers.

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